

**Application No.: 10/790,987**  
**Filing Date: March 2, 2004**

#### **REMARKS**

By way of summary, Claims 8-19, 21, and 23-28 are pending prior to entry of this amendment. Claims 15-19 are allowed. By this paper, Claims 8-10, 21, and 24-26 are amended, Claims 13-14 are canceled, and Claims 36-39 are new. Claims 13 and 14 have been canceled without prejudice and Applicants reserve the right to pursue the subject matter of the cancelled claims at a later date. Thus, Claims 8-12, 15-21, 23-28, and 36-39 are presently pending and are presented for consideration.

#### **Discussion of Claim Rejections Under 35 U.S.C. §112, 2<sup>nd</sup> Paragraph**

The Office Action rejects Claims 21 and 23-28 under 35 U.S.C. §112, 2<sup>nd</sup> paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Page 2 of the Office Action states, in part:

The recited ‘filler component’ in line 6 of claim 21 is confusing and indefinite since it is unclear whether ‘the filler component’ means ‘a biocompatible dispersible filler’, ‘an electronically conductive filler’, or ‘both’ since the instantly recited ‘comprising the steps of’ permits any sequences.

The recited ‘less than about’ in claim 21 is indefinite. It has to be either ‘about’ or ‘less than’.

Claims 21 and 24-26 have been amended to recite, in part, “mixing the biocompatible dispersible filler component”. Claim 21 has been further amended to recite, in part, “a thermal conductivity of less than 5W/mK”. The Applicants respectfully submit that amended Claims 21 and 24-26 would be clear to one of ordinary skill in the art, and the Examiner has not provided any discussion of what in Claims 21 and 24-26 the Examiner objects to. Therefore, the Applicants respectfully request that the rejections of Claims 21 and 24-26 under 35 U.S.C. §112, 2<sup>nd</sup> paragraph, be withdrawn.

#### **Discussion of Claim Rejections under 35 U.S.C. §102(b) or 103(a)**

The Office Action rejects Claims 9, 10, 13, and 14 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,207,077 to Burnell-Jones (“Burnell-Jones”). Applicants have canceled Claims 13 and 14 so the

rejection of these claims is moot. The Applicants respectfully submit that Burnell-Jones fails to disclose or teach each and every element of amended Claims 9 and 10.

With respect to Claim 9, the Office Action states that Burnell-Jones teaches, "luminescent gel coats and moldable resins comprising a polymer, suspending fillers, thixotropic modifiers, and phosphorescent pigments in abstract, examples, and claims. ... Said phosphorescent pigments would meet the instant chromophore filler."

Burnell-Jones defines the term "phosphorescence" in Col 9, lines 41-45, which state, "Although the term 'phosphorescence' implies any kind of cold light, this term will be restricted here to the lasting luminescence which results from exposure of a substance to visible or ultraviolet radiation - what is more properly designated photoluminescence". Thus, one of ordinary skill in the art would understand Burnell-Jones' disclosure of a "phosphorescent pigment" to be a pigment that produces a cold light, specifically, a lasting luminescence, when exposed to visible or ultraviolet radiation.

Amended Claim 9 recites:

A biocompatible polymer composite for use in thermally-related medical therapies, the composite comprising:

a base polymer component;

a dispersed filler component, the filler component having a thermal conductivity of less than 5 W/m-K; and

a chromophore filler component dispersed in the base polymer, wherein the chromophore filler is configured to cooperate with a selected wavelength of light such that, upon exposure of the biocompatible polymer composite to the selected wavelength of light, the chromophore filler raises the temperature of at least a portion of the base polymer component above its melting temperature.

Support for amended Claim 9 may be found in the non-limiting embodiments described at least in Page 25, lines 10-14 and Page 29, lines 6-10 of the specification as filed. As recited, among other features, in amended Claim 9, the chromophore filler component cooperates with a selected wavelength of light to *raise the temperature* of the base polymer component *above its melting temperature*. In contrast, the phosphorescent pigment disclosed by Burnell-Jones is defined as producing a *cold light*, e.g., luminescence. As such, the phosphorescent pigment of Burnell-Jones is incapable of functioning in the manner disclosed by the chromophore filler component of the instant application. Thus, Burnell-Jones fails to disclose or suggest, among other things, "a chromophore filler component dispersed in the base polymer, wherein the chromophore filler

is configured to cooperate with a selected wavelength of light such that, upon exposure of the biocompatible polymer composite to the selected wavelength of light, the chromophore filler raises the temperature of at least a portion of the base polymer component above its melting temperature," as recited, among other features, in amended Claim 9.

Additionally, by teaching that the phosphorescent pigment is defined as producing *cold light* (e.g., luminescence), Burnell-Jones teaches away from exposing a biocompatible polymer composite to a selected wavelength of light where the chromophore filler raises the temperature of at least a portion of the base polymer component above its melting temperature. As noted by the Supreme Court's decision in *KSR Int'l. v. Teleflex, Inc.*, a finding of nonobviousness is more likely when the prior art references teach away from a combination of elements. *See KSR Int'l. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740 (2007). For at least these reasons, the Applicants respectfully submit that Burnell-Jones fails to anticipate or render obvious Claim 9.

With respect to Claim 10, the Office Action states that, "fillers such as metal powders (col. 15, line 55) and metal and metal-coated fibers (col. 22, line 47 to col. 23, line 3, such as sliced aluminum-foil ribbons) and metallic flake pigments (col. 25, line 9) would meet the instant light reflecting filler absent further limitation."

Amended Claim 10 recites:

A biocompatible polymer composite for use in thermally-related medical therapies, the composite comprising:  
a base polymer component;  
a dispersed filler component, the filler component having a thermal conductivity of less than 5 W/m-K; and  
a light reflecting filler component dispersed in the base polymer, wherein the light reflecting filler component is configured to reflect light of a selected wavelength such that the biocompatible polymer composite thermally insulates a portion of the structure that is covered by the biocompatible polymer when light of the selected wavelength is employed to heat a region of the structure adjacent to or including the biocompatible polymer.

Support for amended Claim 10 may be found in the non-limiting embodiments described at least in Page 29, lines 6-10 and Page 31, lines 11-13 and Figures 18A-18B of the specification as filed.

The Applicants respectfully note that, pursuant to M.P.E.P. § 2112(IV):

"[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic" (emphasis in original; citing *In re Rijckaert*, 9 F.3d 1531, 1534, 28 U.S.P.Q.2d

1955, 1957 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981)). The mere fact that a certain thing may result from a given set of circumstances is not sufficient. “Inherency may not be established by probabilities or possibilities.” *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999). To establish inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the prior art. *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)(emphasis in original).

Thus, it may be observed that, in order to establish inherency, it must be clear that the missing descriptive matter is *necessarily* present in the prior art. Furthermore, that a certain thing *may* result from a given set of circumstances is not sufficient. As applied to the rejection of Claim 10, even though Burnell-Jones may disclose metal powders, metal and metal-coated fibers, and metallic flake pigments, it is not inherent that these metals are “configured to reflect light of a selected wavelength such that the biocompatible polymer composite thermally insulates a portion of the structure that is covered by the biocompatible polymer when light of the selected wavelength is employed to heat a region of the structure adjacent to or including the biocompatible polymer,” as recited, among other features, in amended Claim 10. For at least these reasons, the Applicants respectfully submit that Claim 10 is not anticipated or rendered obvious by Burnell-Jones.

The Office Action additionally rejects Claims 8-10, 13, and 14 under 35 U.S.C. 103(a) as obvious over Burnell-Jones in view of U.S. Patent No. 3,359,145 to Salyer (“Salyer”), U.S. Patent No. 5,811,314 to Chen (“Chen”), or US. Patent Publication No. 2002/0090501 to Tobita (“Tobita”). The applicants have cancelled Claims 13 and 14 and therefore submit the rejection of these claims is moot. The Applicant’s respectfully submit that Burnell-Jones, in combination with Salyer, Chen, or Tobita, fails to teach or suggest each and every element of amended Claim 8.

Amended Claim 8 recites:

A biocompatible polymer composite for use in thermally-related medical therapies, the composite comprising:  
a base polymer component;  
a dispersed filler component, the filler component having a thermal conductivity of less than 5 W/m-K; and

a ferromagnetic filler component dispersed in the base polymer, wherein the ferromagnetic filler is present in a concentration sufficient to raise the temperature of at least a portion of the base polymer component above its melting temperature when the biocompatible polymer composite is exposed to an alternating magnetic field.

The Applicants note that Salyer discloses a process where an adhesive bonding two or more conductors is made electrically conductive by the addition of ferromagnetic particles (Salyer, abstract), while Chen teaches a method to use a magnetic ink comprising a mixture of ferromagnetic material and a thermoset resin for dice manufacturing and sifting out defective dice (Chen, Col. 1, lines 24-27), and Tobita teaches a thermally conductive polymer sheet that includes a matrix and graphitized fibers that have a coating layer of ferromagnetic material on their surface (Tobita, abstract). None of Salyer, Chen, or Tobita teach or suggest, among other things, “a ferromagnetic filler component dispersed in the base polymer, wherein the ferromagnetic filler is present in a concentration sufficient to raise the temperature of at least a portion of the base polymer component above its melting temperature when the biocompatible polymer composite is exposed to an alternating magnetic field” as recited, among other features, in amended Claim 8.

Further, as discussed above, Burnell-Jones teaches that the fillers are used, “primarily to reduce the resin shrinkage, lower the exotherm, increase the hardness, increase the thermal conductivity and dimensional stability, increase the fire retardance, or change the density and opacity of the resin” (Col. 15, lines 55-59). Thus, Burnell-Jones, in combination with Salyer, Chen, or Tobita, fails to disclose each and every element of amended Claim 8 and, therefore, amended Claim 8 is not obvious in view of these references.

Additionally, as discussed above, in order to establish inherency, it must be clear that the missing descriptive matter is *necessarily* present in the prior art. Furthermore, that a certain thing *may* result from a given set of circumstances is not sufficient. As applied to the rejection of Claim 8, even if one were to assume, for the sake of argument, that a ferromagnetic filler were employed as a filler in the system of Burnell-Jones, it is not inherent that “the ferromagnetic filler is present in a concentration sufficient to raise the temperature of at least a portion of the base polymer component above its melting temperature when the biocompatible polymer composite is exposed to an alternating magnetic field” as recited, among other features, in amended Claim 8.

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Moreover, as discussed above, by teaching that the phosphorescent pigment is defined as producing *cold light* (e.g., luminescence), Burnell-Jones teaches away from raising the temperature of a biocompatible polymer composite above its melting temperature when exposed to an alternating magnetic field. For at least these reasons, the Applicants submit that Claim 8 is not obvious in view of any combination of Burnell-Jones, Salyer, Chen, or Tobita.

The Applicants also note that, while the Office Action indicates that Claims 9 and 10 are also rejected under 35 U.S.C. 103(a) as obvious over Burnell-Jones in view of Salyer, Chen, or Tobita, no arguments are presented in support of this rejection. Pursuant to M.P.E.P. § 2142:

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also *KSR*, 550 U.S. at \_\_\_, 82 USPQ2d at 1396.

As applied to the rejection of Claims 9 and 10, the Applicants submit that, lacking any articulated reasoning, the statement that Claims 9 and 10 are rejected as obvious over Burnell-Jones in view of Salyer, Chen, or Tobita amounts to a mere conclusory statement. Thus, the Applicants submit that Office Action fails to establish a *prima facie* case of obviousness with respect to Claims 9 and 10 in view of Burnell-Jones, in combination with Salyer, Chen, or Tobita. Therefore, the Applicants respectfully request withdrawal of the rejection of Claims 9 and 10 on these grounds. Moreover, as discussed above, by teaching that the phosphorescent pigment is defined as producing *cold light* (e.g., luminescence), Burnell-Jones teaches away from "exposure of the biocompatible polymer composite to the selected wavelength of light, the chromophore filler raises the temperature of at least a portion of the base polymer component above its melting temperature," as recited, among other features, in amended Claim 9.

The Office Action additionally states that Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent

No. 4,983,648 to Laughner, et al. ("Laughner"). The Applicants respectfully submit that Laughner fails to teach or suggest all the elements of Claims 9 and 10.

With respect to Claim 9, the Office Action states that, "Laughner et al. teach a polymeric composition containing ... phthalyl green (chromophore filler) and antioxidant in table 1." The Applicants note that nowhere in the disclosure of Laughner, other than table 1, is the compound phthalyl green discussed. Thus, Laughner fails to discuss how phthalyl green interacts with light and any influence that such interaction may have upon the composition in which phthalyl green is placed. Therefore, Laughner fails to teach or suggest, among other things, "a chromophore filler component dispersed in the base polymer, wherein the chromophore filler is configured to cooperate with a selected wavelength of light such that, upon exposure of the biocompatible polymer composite to the selected wavelength of light, the chromophore filler raises the temperature of at least a portion of the base polymer component above its melting temperature" as recited, among other features, in amended Claim 9. Applicants submit that, for at least these reasons, Claim 9 is neither anticipated or rendered obvious in view of Laughner.

With respect to Claim 10, the Office Action states that, "Other fillers such as glass microspheres (filler having the recited thermal conductivity) and electrically conductive (and light reflecting) fillers such as stainless steel powder are also taught at col. 6, lines 41-45." For at least similar reasons discussed above, in order to establish inherency, it must be clear that the missing descriptive matter is *necessarily* present in the prior art. Furthermore, that a certain thing *may* result from a given set of circumstances is not sufficient. As applied to the rejection of Claim 10, even though Laughner may disclose stainless steel powder as a filler, it is not inherent that the powder is "configured to reflect light of a selected wavelength such that the biocompatible polymer composite thermally insulates a portion of the structure that is covered by the biocompatible polymer when light of the selected wavelength is employed to heat a region of the structure adjacent to or including the biocompatible polymer," as recited, among other features, in amended Claim 10. For at least these reasons, the Applicants respectfully submit that Claim 10 is not anticipated or rendered obvious by Laughner.

With respect to Claim 21, the Office Action states, "It would have been obvious to one skilled in the art at the time of the invention to mix TiO<sub>2</sub> or stainless steel powder and/or glass

microspheres to an extruder containing a polymer melt for a concentrate in sequence or together in Laughner et al. since Laughner et al teach employing such fillers."

Amended Claim 21 recites:

A method of making a biocompatible polymer composite for use in thermally-related medical therapies, the method comprising the steps of:

- providing a biocompatible base polymer;
- providing a biocompatible dispersable filler component that has a thermal conductivity of less than 5 W/m-K;
- mixing the biocompatible dispersible filler component in the base polymer when in a melt state;
- mixing an electrically conductive filler component into the base polymer; and
- forming the composite into microshells having hollow cores.

Support for amended Claim 21 may be found at least in Claim 15 as originally filed. While Laughner discloses a process for preparing molded objects from a thermoplastic blend (col. 3, line 7-8), Laughner fails to discuss any specific shapes of the molded object. Thus, Laughner fails to disclose or suggest "forming the composite into microshells having hollow cores" as recited, among other features, in amended Claim 21. Therefore, Applicants submit that Claim 21 is not obvious in view of Laughner.

Claims 8-10, 13, 21, and 23-28 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,6241,914 to Schleifstein ("Schleifstein") in view of Laughner and U.S. Patent No. 3,833,546 to Takekoshi, et al. ("Takekoshi").

With respect to Claims 8 and 10, the Office Action states, "Schleifstein teaches electroconductive resin composition containing metal particles in abstract and examples. Other metallic fillers meeting the instant ferromagnetic and light reflecting fillers such as nickel, iron, and cobalt are taught at col. 8, lines 25-35." For at least similar reasons discussed above, in order to establish inherency, it must be clear that the missing descriptive matter is *necessarily* present in the prior art. Furthermore, that a certain thing *may* result from a given set of circumstances is not sufficient. As applied to the rejection of Claims 8 and 10, even though Schleifstein may disclose metal powders and pigments, it is not inherent that the metal powders are "present in a concentration sufficient to raise the temperature of at least a portion of the base polymer component above its melting temperature when the biocompatible polymer composite is exposed to an alternating magnetic field" as recited, among other features, in amended Claim 8 or

“configured to reflect light of a selected wavelength such that the biocompatible polymer composite thermally insulates a portion of the structure that is covered by the biocompatible polymer when light of the selected wavelength is employed to heat a region of the structure adjacent to or including the biocompatible polymer,” as recited, among other features, in amended Claim 10 or that the pigments are “configured to cooperate with a selected wavelength of light such that, upon exposure of the biocompatible polymer composite to the selected wavelength of light, the chromophore filler raises the temperature of at least a portion of the base polymer component above its melting temperature” as recited, among other features, in amended Claim 9. For at least these reasons, the Applicants submit that Claims 8-10 are not obvious in view of Schleifstein.

With respect to Claim 21, Schleifstein discloses an electroconductive composition and methods for making the composition. For example, Schleifstein discloses:

The mixture to be cured is typically in the form of a paste. It can be shaped prior to curing by any conventional rubber molding method such as compression molding, transfer molding, extrusion molding, injection molding, calendaring, and the like depending on the desired products. ... the compositions are suitable for use as electrically conductive gaskets for electronic components, as electrically conductive adhesives, as encapsulating agents for electronic components, as electrodes, electroconductive rubber rollers, and as cores for ignition cables. It is advantageous that articles of manufacture such as shielding gaskets and the like can be formulated to have definitive form-stable shape, e.g., of the type utilized to fit a closure to be shielded. The compositions are also useful in silk-screening processes in preparing electronic circuits (Schleifstein, Col 15, lines 60-64 and Col 16, lines 9-17)

Thus, Schleifstein discloses forming techniques and formed articles, such as electrically conductive gaskets, electrodes, electroconductive rubber rollers, and cores for ignition cables. Notably, however, Schleifstein fails to disclose or suggest, among other things, “forming the composite into microshells having hollow cores” as recited, among other features, in amended Claim 21. For at least these reasons, the Applicants respectfully submit that Claim 21 is not obvious in view of Schleifstein.

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**Discussion Of New Claims 36-39**

New Claims 36-39 are added herewith. Support for new Claims 36-39 may be found in at least in Page 25, lines 10-14, Page 25, line 15-Page 26, line 5, Page 19, lines 6-10, and Page 31, lines 11-13, of the specification as filed. Independent Claim 36 is allowable for at least the reasons discussed above.

**Discussion Of Dependent Claims**

Claims 23-28 depend from Claim 21 and, therefore, include each of the limitations of Claim 21. Claims 37-39 depend from Claim 36 and, therefore, include each of the limitations of Claim 36. Claims 23-28 and 37-39 are allowable over the cited art at least for the reasons discussed above with reference to their respective base claims, not only because these claims depend from a rejected base claim, but also because each of these claims recites a unique combination of features not taught or suggested in the cited art.

**No Disclaimers or Disavowals**

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

**Related Patents of Assignee**

Applicant wishes to draw the Examiner's attention to the following co-pending applications of the present application's assignee.

Serial Number	Title	Filed
10/456,149 (Now U.S. Patent No. 6,958,061; Atty. Docket: DINE.034A)	MICROSFERES WITH SACRIFICIAL COATINGS FOR VASO-OCCLUSIVE SYSTEMS	06/05/03

The Applicant notes that cited references, office actions, responses, and notices of allowance currently exist or will exist for the above-referenced matters. Applicant also understands that the Examiner has access to sophisticated online Patent Office computing systems that provide ready access to, for example, specification and drawing publications, pending claims and complete file histories, including, for example, cited art, office actions, responses, and notices of allowance. However, if the Examiner cannot readily access these file histories, the Applicant would be pleased to provide any portion of any of the file histories at any time upon specific Examiner request.

#### **SUMMARY**

Applicant has endeavored to address all of the Examiner's concerns as expressed in the Office Action. Accordingly, amendments to the claims, the reasons therefore, and arguments in support of patentability of the pending claim set are presented above. Any claim amendments which are not specifically discussed in the above remarks are made in order to improve the clarity of claim language, to correct grammatical mistakes or ambiguities, and to otherwise improve the clarity of the claims to particularly and distinctly point out the invention to those of skill in the art. Applicants may not have presented in all cases, arguments concerning whether the applied references can be properly combined or modified in view of the deficiencies noted above, and Applicants reserve the right to later contest whether the cited references can be properly combined or modified. Finally, Applicant submits that the claim limitations above represent only illustrative distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history

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shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections and, particularly, that all claims be allowed. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully invited to call the undersigned. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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